



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/527,385

04/06/2006

Valentino Villari

30882/SCG5204

2243

4743 7590 04/11/2007
MARSHALL, GERSTEIN & BORUN LLP
233 S. WACKER DRIVE, SUITE 6300
SEARS TOWER
CHICAGO, IL 60606

EXAMINER

KWIECINSKI, RYAN D

ART UNIT

PAPER NUMBER

3635

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
--	-----------	---------------

3 MONTHS

04/11/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/527,385

Applicant(s)

VILLARI ET AL.

Examiner

Ryan D. Kwiecinski

Art Unit

3635

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 February 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 February 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☒ Other: Exhibit X, Y, Z.

DETAILED ACTION

In view of Applicant's amendment received 5 February 2007, the corrections to the specification, the drawings, and the claims have been approved. Applicant's arguments filed 5 February 2007 have been fully considered but they are not persuasive to overcome the rejections of the previous office action. Therefore, there rejection of pending claims 1-10 has been reiterated in this final office action.

Response to Arguments

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation to combine the TiO₂ layer of Finley with the fire resistant transparent laminates of Bolton et al. lies in the knowledge generally available to one of ordinary skill in the art. It is a known characteristic of certain fireproof materials to be susceptible to environmental influences, which can reduce or negate their ability to function, per page 5, paragraph 1 of the initial rejection. It is also available knowledge to one of ordinary skill in the art that TiO₂ used as laminates, glazes, or combinations with other materials as nanoscale

Art Unit: 3635

particles is transparent to optical light, but highly reflective to UV light. It is also known in the art that modifications to the thicknesses and particle size distributions of TiO_2 result in desirable characteristics of the properties of TiO_2 . It is further known that TiO_2 is a known additive to fire resistant substrates and textiles (Construction Materials: Types, Uses, and Applications, page 884, Table T20). The properties of TiO_2 previously mentioned provide motivation to combine the TiO_2 layer with the fire resistant glazing, which will enhance the overall UV and fire resistance properties of the glazing.

In regards to the first new paragraph on page 8 of the Applicant's arguments, Finley does not teach "that if reflection or absorption of UV radiation is desired, then a separate, optional functioning coating 38 should be used", Finley teaches that an additional functional coating may be applied to the substrate, which modifies one or more chemical properties of the substrate (Page 3, Paragraph 31). Finley goes on to give an example of a solar control coating, which may be applied. Finley also goes on to teach that this coating 38 may be a metal oxide. TiO_2 is an example of a metal oxide.

Regarding the Applicant's argument in the second full paragraph of page 9, Finley does not teach the use of a fireproof layer, but Bolton et al. teaches a fireproof layer in a glazing. The combination of the fireproof glazing of Bolton et al. and TiO_2 layer of Finley would result in a glazing with a fireproof layer as well as a TiO_2 layer per claim 1 rejection, page 4.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,496,640 to Bolton et al. in view of US Pub No. US 2002/0045073 A1 to Finley in view of CEFIC, European Chemical Industry Council (Exhibit Z).

Claim 1:

Bolton et al. teaches a fireproof glazing unit comprising at least two transparent glass substrates (11,12,0 Fig.1) spaced from each other, at least one transparent fireproof layer disposed between the glass panes (13, Fig.1), Bolton et al. does not teach a transparent TiO_2 layer that reduces the incidence of UV radiation onto the fireproof layer on at least one side of said fireproof layer.

Finley teaches a transparent TiO_2 layer (32, Fig.1) Exhibit Z teaches a layer that reduces the incidence of UV radiation onto the fireproof layer on at least one side of said fireproof layer. Exhibit Z teaches that TiO_2 has a high refractive index as well as a high reflectance, which will reduce the incidence of UV radiation onto the fireproof layer. Exhibit Z also teaches that the thin layer affords protection from UV degradation.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have coated the glass substrates of the glazing with a

layer of titanium oxide in order to block the UV radiation from engaging the fireproof layer as well as transmitting through the glazing. It is a known characteristic of certain fireproof materials to be susceptible to environmental influences, which can reduce or negate their ability to function (Column 7, lines 14-16 Bolton et al.). Remarkably high refractance as well as high reflectance are two known characteristics of Titanium oxide (CEFIC, European Chemical Industry Council, lines 6-7). Preventing the fireproof layer from absorbing large amounts of UV radiation would then be obvious.

Claim 2:

Bolton et al., Finley, and Exhibit Z teach the fireproof glazing unit according to claim 1 (above), Finley teaches wherein the TiO_2 layer is disposed on an outer surface of one glass pane (Page 4, Para. 33, lines 16-18) facing outwardly thereof.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have disposed the titanium oxide layer on the outer surface of one pane of glass as long as the titanium oxide layer is able to function on the outer surface of the pane of glass. Applying the layer to different surfaces is a design choice as long as the layer will perform the same functions on those different layers. Therefore applying the titanium oxide layer on the outer surface is obvious.

Claim 3:

Bolton et al., Finley, and Exhibit Z teach the fireproof glazing unit according to claim 1 (above), Finley teaches wherein the TiO_2 layer is disposed between an inner surface of an outwardly-facing glass pane and the fireproof layer (Page 4, Para. 33, lines 16-18).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have disposed the titanium oxide layer on the inner surface of the outwardly-facing pane of glass as long as the titanium oxide layer is able to function on the inner surface of the pane of glass. Applying the layer to different surfaces is a design choice as long as the layer will perform the same functions on those different layers. Therefore applying the titanium layer on the inner surface is obvious.

Claim 4:

Bolton et al., Finley, and Exhibit Z teach the fireproof glazing unit according to claim 1 (above), Finley teaches the fireproof glazing unit comprises at least one functional layer (30, Fig.1) in addition to the fireproof layer and the transparent TiO_2 layer.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have added additional layers to the fireproof glazing in order to change or enhance the properties of the glazing unit. This design choice

Art Unit: 3635

all depends on the materials used for the layers and the desired effects of the overall glazing.

Claim 5:

Bolton et al., Finley, and Exhibit Z teach the fireproof glazing unit according to claim 1 (above), Finley teaches wherein the thickness of the TiO_2 layer is about 10 nm to 75 nm (Page 3, Para. 28, lines 9-11).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have applied the titanium oxide layer with any desired thickness in order to obtain the necessary characteristics of the material.

Claim 6:

Bolton et al., Finley, and Exhibit Z teach the fireproof glazing unit according to claim 1 (above), Finley teaches wherein the TiO_2 layer is applied by a method selected from the group consisting of magnetron sputtering, sol-gel methods, and CVD methods (Page 4, Para. 34, lines 4-9).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have applied the titanium oxide layer by one of the methods listed if these methods are suitable ways to apply a titanium oxide layer to a glass substrate. These methods are well known in the art.

Product by Process

It should be noted that claim 6 is considered product-by-process claims, therefore, determination of patentability is based on the product itself. See MPEP 2113. The patentability of the product does not depend on its method of production. If the product-by-process claim is the same as or obvious from a product of the same prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed.Cir.1985)

Claim 7:

Bolton et al., Finley, and Exhibit Z teach the fireproof glazing unit according to claim 1 (above), wherein the fireproof layer displays an absorption of at least 70% within the wavelength spectrum from 800 nm to 1400 nm.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have chosen a fireproof material that will absorb 70% of the near infrared radiation that attempts to transmit through the fireproof glazing. The fireproof layer is able to accommodate heat allowing the layer to absorb as much heat as possible preventing this infrared radiation from traveling through the glazing. The type of material chosen is a design choice, which provides for the overall characteristics of the fireproof glazing.

Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,496,640 to Bolton et al. in view of US Pub No. US 2002/0045073 A1 to

Finley in view of CEFIC, European Chemical Industry Council (Exhibit Z) in view of Construction Materials: Types, Uses, and Applications (Exhibit Y).

Claim 8:

Bolton et al., Finley, and Exhibit Z teach the fireproof glazing unit according to claim 1 (above), but do not teach wherein the TiO_2 layer displays an absorption between 3% and 15% within the wavelength spectrum from 320 nm to 480 nm. Exhibit Y discloses that modifications have been developed to produce certain desirable characteristics for specific uses (Column 2, lines 9-11).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have created a titanium oxide film to an appropriate thickness in order for the material to display the optical characteristics as desired. At a certain thickness, titanium oxide will display distinct characteristics. So in order to provide the fireproof glazing with the desired characteristics one would obviously alter the layers thickness (Construction Materials: Types, Uses, and Applications, page 883, column 2, lines 9-11).

Claim 9:

Bolton et al., Finley, and Exhibit Z teach the fireproof glazing unit according to claim 1 (above), but do not teach wherein the TiO_2 layer displays a reflection of at least 40% within the wavelength spectrum from 320 nm to 480

Art Unit: 3635

nm. Exhibit Y discloses that modifications have been developed to produce certain desirable characteristics for specific uses (Column 2, lines 9-11).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have created a titanium oxide film to an appropriate thickness in order for the material to display the optical characteristics as desired. At a certain thickness, titanium oxide will display distinct characteristics. So in order to provide the fireproof glazing with the desired characteristics one would obviously alter the layers thickness (Construction Materials: Types, Uses, and Applications, page 883, column 2, lines 9-11).

Claim 10:

Bolton et al., Finley, and Exhibit Z teach the fireproof glazing unit according to claim 1 (above), but do not wherein the TiO_2 layer displays a reflection of at least 40% to 60% within the wavelength spectrum from 320 nm to 480 nm. Exhibit Y discloses that modifications have been developed to produce certain desirable characteristics for specific uses (Column 2, lines 9-11).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have created a titanium oxide film to an appropriate thickness in order for the material to display the optical characteristics as desired. At a certain thickness, titanium oxide will display distinct characteristics. So in order to provide the fireproof glazing with the desired characteristics one would

obviously alter the layers thickness (Construction Materials: Types, Uses, and Applications, page 883, column 2, lines 9-11).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan D. Kwiecinski whose telephone number is (571)272-5160. The examiner can normally be reached on Monday - Friday from 8 am to 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Friedman can be reached on (571)272-6842. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3635

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


RDK


Carl D. Friedman
Supervisory Patent Examiner
Group 3600